Medical Education

Western Medical Schools—A Breed Apart

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Based on the Presidential Address at the annual meeting of the Western Association of Physicians in Carmel, California, February 16, 1988.

The 16 medical schools in the 13 western states are distinctive from their counterparts nationally in several ways: they are relatively young, enroll a small number of medical students, and tend to be strongly research oriented. The rise of these institutions since Abraham Flexner's visit to all of the western schools in 1909 reflects a truly remarkable development.

(Dale DC: Western medical schools—A breed apart. West J Med 1989 May; 150:602-603)

There are now 127 medical schools in the United States; 16 are located in the 13 western states (Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming). By comparison with other regions, the western schools are distinctive in several ways. They are relatively young, and they are predominantly publicly supported. They enroll a relatively small number of students and tend to be research oriented. They also now cooperate in a number of activities: support of the annual western clinical research meetings in Carmel, California—the Western Section of the American Federation for Clinical Research, the Western Society of Clinical Investigation, and the Western Association of Physicians—sponsorship of the clinical investigation section of THE WESTERN JOURNAL OF MEDICINE, and regional medical education activities coordinated by the American Association of Medical Colleges.

The oldest medical school in the West is the University of California at San Francisco, which opened in 1864. Only three other present-day schools—the University of Colorado (1883), the University of Southern California (1885), and the University of Oregon (1887)—date from before the turn of the century. Three others—the University of Utah (begun as a two-year school in 1905), Stanford University (1908), and Loma Linda University (1909)—were opened before the Flexner report on medical education in the US in 1910.[1]

The Flexner report provides an interesting perspective and a useful benchmark for examining early medical education in the West. At the turn of the century there were then nearly 160 medical schools in the US, including 15 western schools. In April and May of 1909, Flexner visited all of them—ten medical schools in California, two in Colorado, two in Oregon, and one in Utah—under the auspices of the Carnegie Foundation, spending about a day at each school.

Even before his trip to the West, Flexner was firmly convinced that there were too many medical schools in the United States giving too low a quality of education and that overall the country had too many poorly trained physicians. With his visit, he found this to be a particularly serious problem along the West Coast. California then had 240 doctors per 100,000 population, a number not very different from the current level of 262 physicians per 100,000 population. In his summary report, he recommended reducing the number of schools nationally to 31, with only 4 western schools, 1 each in Denver, Salt Lake City, San Francisco, and Seattle.

In his report, Flexner commented favorably on only a few schools: the University of California at San Francisco and Berkeley, the University of Southern California, the University of Colorado, then at Boulder, and the new two-year school of the University of Utah. In general, he deplored conditions elsewhere, particularly in the proprietary schools. He reported that at the California College of Medicine in Los Angeles, 26 of 27 faculty members held the rank of professor; he found that the weaker schools were often top heavy with professors. At the University of California at San Francisco, he thought that the clinical teachers, except perhaps for the dean, were not in touch with laboratory work and ideas as were taught in the basic sciences at Berkeley. He was concerned about the quality of clinical teaching. For the University of Colorado, he noted that the medical school was then receiving 14% of the University's total state support, but in Oregon the school was receiving only $1,000 per year, far too little for an adequate school. He commended the state of Washington for not beginning a medical school as they could not afford one. He also did not believe that the Denver and Gross College, a private medical school in Denver, would be able to attract sufficient students to fill its class after the state of Colorado passed a law in 1909 requiring that applicants for licensure have at least one year of college. He said, however, that this school could possibly continue if it trained "low grade men" for the adjacent states of Wyoming, Arizona, Idaho, and New Mexico, which lacked medical schools.

Rapid changes in medical care and the intense scrutiny that medical education received early in the 20th century prompted the closing of many medical schools, including 8 of the 15 western schools visited by Flexner. Furthermore, no new western schools were started until the end of World War II. The University of Washington (1945) and the Uni-

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versity of California at Los Angeles (1951), as well as the University of British Columbia (1950) were then opened and were followed by a second wave of new schools in the era of the Great Society—New Mexico (1961), Arizona (1962), California (San Diego, 1962; Irvine, 1962; and Davis, 1963), Hawaii (1967), and Nevada (1969). Of the 16 western schools, 13 (81%) are publicly supported, whereas for other regions, only 61 of 111 (55%) are public institutions.[2]

Medical schools can be studied and compared in many ways, for example, by the size of the entering class (Table 1). In general, medical school enrollment in the West has always lagged behind population growth by comparison with national averages. For instance, in 1986-1987, there were 1,752 first-year medical students (about 10% of the national first-year students) enrolled in the schools in the 13 western states, which have about 20% of the US population.[3] Of these students, 85% were from this region (the total of first-year western students in western schools was 1,489). There were, however, 1,338 students from the western states enrolled as first-year medical students in schools in other regions.[3] Thus, only about half (53%) of the students from the West going to medical schools are in western schools. There would need to be twice as many schools or the present schools would need to be nearly twice their current size if they were to accommodate all of the medical students from this region going to medical school.

A somewhat different picture emerges at the level of graduate medical education. For a long time there have been more internships (first-year residencies) in the West than there are graduates of the western schools. In 1987 there were 1,703 graduates for the region and 3,078 western internships or first-year residency positions available (16% of the national total).[4] Many of these positions date from the 1920 to 1950 period when graduate medical education programs were used to upgrade hospital care and to attract young physicians to the West. Most are now in urban centers and affiliated with medical schools. There are substantial variations in the locations of these positions. For instance, in Arizona there are nearly three graduate medical education positions for every medical student who graduates there, whereas New Mexico now has a ratio of graduate medical education positions to medical student graduates of less than 1.[4] On a state-by-state basis, all of the more populous western states have more first-year residency positions than graduating medical students, in contrast to many midwestern and southern states with relatively few graduate medical education positions. It can easily be seen that the schools can influence the location and specialty distribution of physicians practicing in the region through the graduate medical education program they sponsor as well as through medical student education. This is particularly the case in the West because both students and residents who have trained here tend to stay here.[5]

TABLE 1.—*Some Characteristics of Western Medical Schools, 1986-1987*

Characteristic	*West*	*United States*
Medical schools, No.*	16	127
Public funding, No. (%)	13 (81)	75 (59)
Private funding, No. (%)	3 (19)	41 (52)
Students, average No. per school*		
Medical students, No.	451	538
Residents, No.	599	498
Graduate students, No.	154	130
Students (total)*		
First year, No.	1,752	16,779
Graduating, No.	1,703	15,872
Resident positions—first year†	3,078	19,047
Faculty, average No. per school‡		
Total full-time faculty (FTE), No.	491	498
Associate professors and professors, No.	278	249
Principal investigators for research grants, No.	125	99
Research expenditures per FTE, $	56,000	32,000
Population, millions	48	239

*From Appendix II, Table 2, "Medical Schools in the United States," *The Journal of the American Medical Association* (1987; 258:1074-1077).[3]
†From National Residency Matching Program Directory.[4]
‡From Association of Medical Colleges.[6]

One other comparison of the western schools with those in other regions is particularly noteworthy. Statistics gathered by the Association of American Medical Colleges indicate that the western schools are more research oriented than those of any other region.[6] These data show that the percentage of faculty who are principal investigators for research grants is currently 24% for western schools versus 18% for faculty nationally. The percent of the schools' budgets that goes for research is also larger in the West (22% for western schools versus 17% nationally). Research expenditures for faculty are also substantially more. Because the sizes of the western basic science departments are slightly smaller—the average western basic science faculty numbers 106 per school versus 115 per school nationally—it may be inferred that more of the investigators and more of the research expenditures are in clinical departments in western schools. When reasonably consistent methods are used to compare the revenues of medical schools, the biggest difference between schools in the West and schools in other regions is the size of their research budgets.[6]

The growth and development of western medical schools since Abraham Flexner's visit 79 years ago is truly remarkable. The schools have become leaders in both basic and clinical research and have led the way in many innovative educational endeavors. They now compete favorably with their eastern counterparts in terms of the quality of their students and the prestige of their faculty. Their greatest challenge lies in maintaining the pioneering spirit that brought them so far so fast and the public support (both state and federal) on which they are now continually dependent.

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